

ABSTRACT

In the medical world still occur service dissatisfaction because of deficiency in testing blood type facility, so if we have many blood sample to be tested, it makes problems and needs electronic tool to help. This persuade the author to have a research on using Artificial Neural Network (ANN) on Field Programmable Gate Array (FPGA) to determine blood type.

This research use blood samples image as input of the system. The image which is used have 32x32 pixels, 48x48 pixels, 64x64 pixels, 80x80 pixels, and 96x96 pixels size. VHSIC Hardware Discription Language (VHDL) is the language to describe the algorithm. ANN algorithm which used is forward propagation of backpropagation algorithm. There are 3 layers used in design, they are input, hidden1, and output. At hidden1layer has two neurons.

The application of ANN on FPGA in this research give more than 75% success rate of the result performance based on mean and median rasio .

Key words: Artificial Neural Network (ANN), Field Programmable Gate Array (FPGA), blood type, VHSIC Hardware Discription Language (VHDL), pixel image.